

PROJECT NUMBER: 2507
PROJECT TITLE: Radiochemical Investigations
PROJECT LEADER: S.B. Hassam
PERIOD COVERED: October, 1987

I. Sidestream Gas Phase Composition

- A. Objective: Develop methods for sidestream gas phase collection, sampling and analysis of cigarettes spiked with ^{14}C -glycerol.
- B. Results: Plans have been made to modify smoking machines for gas phase collection from radiolabeled cigarettes. Initial investigations will focus on using (1) single port impaction machine (2) single port syringe type machine and (3) total recovery single port machine. At the recent 41st TCRC meeting W.E. Crouse et al. of Lorillard presented a paper (#25) on collection devices for use in determination of formaldehyde in SS smoke. A copy of the manuscript has been requested as some of the collection designs will be useful in our work with radiolabeled cigarettes.

Purchase of two types of radioactivity gas detectors, flow-through and stop-flow, is under consideration.

Radioanalysis by TLC and paper chromatography of ^{14}C -glycerol obtained from NEN gave confusing results. A batch of ^{14}C -glycerol was obtained from Amersham Corp. Both radiolabeled samples were observed to chromatograph in the same way i.e. in some chromatography systems either partitioning or adsorption led to double peaking and/or broadening. The overall conclusion is that the radiochemical purity of both materials is in excess of 97%.

- C. Plans: Continue the above investigations.

II. SMOKE CHEMISTRY STUDIES

- A. Objective: Determine distribution into smoke from cigarettes labeled with ^{14}C -glycerol.
- B. Results: 40 g of sieved manicured 2R1 filler was sprayed with 283.02 μCi of ^{14}C -Glycerol in 5 mL water:ethanol (1:1).
- C. Plans: Prepare cigarettes for smoking studies.
- D. References: N.B. 8361.

III. OTHER ACTIVITIES

- A. Biosynthesis of ^{13}C -labeled sucrose esters has been initiated (memo from R. R. Izac and R. H. Newman, Protocol for harvesting tobacco fed ^{13}C - β -methylvaleric acid, Oct. 2, 1987).

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B. The following papers were presented at the 41st TCRC, October 4-7, 1987:

1. Use of a Schlieren Optical System to Observe the Thermal Column Rising from a Cigarette Coal. D. D. McRae and R. W. Jenkins, Jr.
2. The Detection of Carbon-14 in Individual Aerosol Particles. R. W. Jenkins, Jr. and D. D. McRae.
3. Cigarette Smoke Transfer Studies. Transfer of Added [18-¹⁴C]Octatriacontane. R. T. Bass, L. E. Brown, S. B. Hassam, G. C. Newell, Jr. and R. H. Newman.

C. A trip report of the 1987 meeting of the American Association for Aerosol Research was issued (memo from S. B. Hassam, October 15, 1987).

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